

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 April 2004 (01.04.2004)

PCT

(10) International Publication Number
WO 2004/027927 A1

(51) International Patent Classification⁷: **H01Q 3/24, 21/29**

(21) International Application Number:
PCT/AU2003/001246

(22) International Filing Date:
19 September 2003 (19.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2002951632 20 September 2002 (20.09.2002) AU

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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Declaration under Rule 4.17:

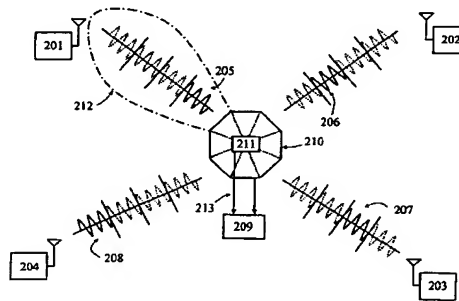
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **A SYSTEM AND METHOD FOR THE MITIGATION OF MULTIPATH AND THE IMPROVEMENT OF SIGNAL-TO-NOISE RATIOS IN TIME DIVISION MULTIPLE ACCESS(TDMA) LOCATION NETWORKS**



(57) Abstract: A positioning system that includes a plurality of chronologically synchronized Time Division Multiple Access (TDMA) Positioning-Unit Devices and a position receiver incorporating a TDMA Adaptive Directional Antenna Array is disclosed. The plurality of chronologically synchronized Positioning-Unit Devices, positioned at known locations, transmit positioning signals in a predetermined Time Division Multiple Access (TDMA) sequence, such that each Positioning-Unit Device has a unique transmission time slot. The TDMA Adaptive Directional Antenna Array is configured to consecutively steer a directional receive antenna in spatial synchronization with the plurality of Time Division Multiple Access (TDMA) Positioning-Unit Device transmissions, such that the directional receive antenna is oriented toward the currently transmitting Positioning-Unit Device, or the directional receive antenna is oriented toward the origin of the currently received positioning signal. The TDMA Adaptive Directional Antenna Array is controlled by a deterministic algorithm based on the knowledge of the Positioning-Unit Device locations, TDMA Adaptive Directional Antenna Array location, TDMA Adaptive Directional Antenna Array attitude, network Time Division Multiple Access (TDMA) transmission sequencing, Positioning-Unit Device positioning signal propagation delays, and network time.